SPECTROSCOPIA MOLECULAR

Un bulletin mensual de novas e informationes de interesse e valor al spectroscopistas molecular

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METHANOS SUBSTITUITE. XVIII. SPECTROS VIBRATIONAL DE $C^{13}H_3I$

Richard B. Bernstein, Forrest F. Cleveland, e Fred L. Voelz; instituto technologic de Illinois, Chicago 16, Illinois, Statos Unite.

Submittite al Journal of Chemical Physics le 13 de augusto 1953.

SPECTROS Raman e infrarubie ha essite obtenite pro duo mixturas de $C^{13}H_3I$ (9,3 e 61 per cento) e $C^{12}H_3I$, e ex istos le spectro vibrational de $C^{13}H_3I$ ha essite deducite. Le numeros de undas per cm pro $C^{12}H_3I$ e le cambiamentos isotope inter le duo isotopos es:

Fundomental	$\sigma_{vac}(C^{12}H_3I)$	$\sigma(C^{12}) - \sigma(C^{13})$
$\nu_1(a_1)$	2969,0K	10 ± 3K
$\nu_2(a_1)$	1251,4	5,5 ± 1,0
$\nu_3(a_1)$	533,4	16,1 ± 1,0
$\nu_4(e)$	3059,9	9,4 ± 2,3
$\nu_5(e)$	1435,1	4,6 ± 0,6
$\nu_6(e)$	881,8	3,7 ± 0,3

[σ_{vac} = numero de undas in K (kayser) o cm^{-1}.]

Analyse del bandas perpendicular dava, con le assistentia del datos microundic, valores del constantes rotational, le constantes de interaction Coriolis, e le origines del bandas. Istos es:

	$C^{12}H_3I$	$C^{13}H_3I$
pro ν_6,		
B_1	0,251 ± 0,001K	0,238 ± 0,001
A_1	5,12 ± 0,01K	5,10 ± 0,01
	0,199 ± 0,002	0,198 ± 0,002
ν_0	881,8 ± 0,1K	878,1 ± 0,2;
pro ν_5,		
B_1	0,258 ± 0,010	0,245 ± 0,010
A_1	5,10 ± 0,03	5,08 ± 0,03
	-0,208 ± 0,007	-0,211 ± 0,007
ν_0	1435,1 ± 0,4	1430,5 ± 0,6;
e pro ν_4,		
B_1	0,274 ± 0,002	(0,261)
A_1	5,04 ± 0,01	(5,02)
	0,052 ± 0,002	(0,050)
ν_0	3059,9 ± 0,3	(3050,5 ± 2,3).

METHANOS SUBSTITUITE. XIX. CAMBIAMENTOS ISOTOPE IN LE SPECTRO VIBRATIONAL DE METHANOL

Richard B. Bernstein, James E. Lamport, e Forrest F. Cleveland; instituto technologic de Illinois, Chicago 16, Illinois, Statos Unite.

Summario de un articulo submittite al Journal of Chemical Physics le 13 de augusto 1953.

SPECTROS Raman e infrarubie esseva obtenite con un specimen de methanol que contineva 9,3 per cento de $C^{13}H_3OH$. Le bandas $\sigma_4^{CO}(a')$, $\sigma_2^{CH}(a')$, e $2\sigma_3(A')$ appareva a 1036, 2835, 2943K pro $C^{12}H_3OH$ e a 1021, (2823), e 2924 pro $C^{13}H_3OH$. Le correspondente cambiamentos isotope es 16 ± 1, (12 ± 2), e 19 ± 2K.

SPECTRO MICROUNDIC DE $H_3C-C\equiv C-C\equiv C-H$

G. A. Heath, L. F. Thomas, e J. Sheridan; departimento de chimia, le universitate, Birmingham 15, Anglaterra.

Summario de un articulo submittite a Nature.

LE spectro rotational de 1,3-pentadiyno ha essite obtenite con un spectrographia microundic. Le resultatos indica que iste molecula es un rotor symmetric. Mesurationes esseva facite pro le transitiones $J = 4\to5$, $5\to6$, $7\to8$, e $8\to9$, pro omnes del quales le componentes pro differente K es ben resolvite. Le sequente resultatos esseva obtenite: $B_o = 2.035,73_3$ Mc; $D_{JK} = 20,0$ kc; $D_J = 0,2$ kc o minus; $I_B = 412,08 \cdot 10^{-40}$ g cm^2; $d_{C-C} = 1,460$A (terminal); $d_{C\equiv C} = 1,207$; d_{C-C} (central) = 1,377; d_{C-H} (acetylenic) = 1,06; e d_{C-H} (methylo) = 1,10. Pro comparation, le valor de d_{C-C}

(continuate a pagina 45)

SENTIMENTOS de superioritate e inferioritate face nihil pro le scientia e deberea esser oblidate. Cata laborator in recerca deberea prender su placia in ille sphera in le qual ille senti que ille pote facer le plus grande contributiones al saper. -- Baker, The Scientific Life.

REGULAS DE SELECTION PRO SPECTROS VIBRATIONAL DE MOLECULAS POLYATOMIC

(continuate ab Spec. mol. 2, 40 (1953))

TABULA X, continuate:

D_3 (Per S. Langer)

Elementos: I, C_3, C_2'.

Typos: a_1, a_2, e.

Permittite: In e Raman e infrarubie: e, $a_1 \times e$, $a_2 \times e$, $e \times e$, e^n.

Solmente in Raman: a_1, $a_1 \times a_1$, $a_2 \times a_2$, a_1^n, a_2^n(n par).

Solmente in infrarubie: a_2, $a_1 \times a_2$, a_2^n(n impare).

D_{3h}

Elementos: I, C_3, C_2, σ_h, S_3, σ_v

Typos: a_1', a_2', a_1'', a_2'', e', e".

Permittite: In e Raman e infrarubie: e', $a_1' \times e'$, $a_2' \times e'$, $a_1'' \times e''$, $a_2'' \times e''$, $e' \times e'$, $e' \times e''$, $e'' \times e''$, e'^n, e''^n.

Solmente in Raman: a_1', e", $a_1' \times a_1'$, $a_1' \times e''$, $a_2' \times a_2'$, $a_2' \times e''$, $a_1'' \times a_1''$, $a_1'' \times e'$, $a_2'' \times a_2''$, $a_2'' \times e'$, $a_1'^n$, $a_2'^n$(n par), $a_1''^n$(n par), $a_2''^n$ (n par)

Solmente in infrarubie: a_2'', $a_1' \times a_2''$, $a_2' \times a_1''$, $a_2''^n$(n impare).

Exemplo: 1, 3, 5-Trichlorobenzina; 4 a_1', 3 a_2', 3 a_2'', 7 e', 3 e".

D_{3h}'

Elementos: I, C_3, C_2, σ_h, S_3, σ_v.

Typos: a_1, a_2, $\bar{a}_1$, $\bar{a}_2$, e, $\bar{e}$.

Permittite: In e Raman e infrarubie: e, $a_1 \times e$, $a_2 \times e$, $\bar{a}_1 \times \bar{e}$, $\bar{a}_2 \times \bar{e}$, $e \times e$, $e \times \bar{e}$, $\bar{e} \times \bar{e}$, e^n, $\bar{e}^n$.

Solmente in Raman: a_1, $\bar{e}$, $a_1 \times a_1$, $a_1 \times \bar{e}$, $a_2 \times a_2$, $a_2 \times \bar{e}$, $\bar{a}_1 \times \bar{a}_1$, $\bar{a}_1 \times e$, $\bar{a}_2 \times \bar{a}_2$, $\bar{a}_2 \times e$, a_1^n, a_2^n(n par), $\bar{a}_1^n$(n par), $\bar{a}_2^n$(n par).

Solmente in infrarubie: $\bar{a}_2$, $a_1 \times \bar{a}_2$, $a_2 \times \bar{a}_1$, $\bar{a}_2^n$(n impare).

Exemplo: Dimethyldiacetyleno; 5 a_1, 1 $\bar{a}_1$, 4 $\bar{a}_2$, 5 e, 5 $\bar{e}$.

D_{3d}

Elementos: I, C_3, C_2', i, S_6, σ_d.

Typos: a_{1g}, a_{1u}, a_{2g}, a_{2u}, e_g, e_u.

Permittite: Solmente in Raman: a_{1g}, e_g, $a_{1g} \times a_{1g}$, $a_{1g} \times e_g$, $a_{1u} \times a_{1u}$, $a_{1u} \times e_u$, $a_{2g} \times a_{2g}$, $a_{2g} \times e_g$, $a_{2u} \times a_{2u}$, $a_{2u} \times e_u$, $e_g \times e_g$, $e_u \times e_u$, a_{1g}^n, a_{1u}^n(n par), a_{2g}^n(n par), a_{2u}^n(n par), e_g^n, e_u^n(n par)

Solmente in infrarubie: Omne le alteres, excepte a_{1u}, a_{2g}, $a_{1g} \times a_{1u}$, $a_{1g} \times a_{2g}$, $a_{1u} \times a_{2u}$, $a_{2g} \times a_{2u}$, a_{1u}^n(n impare), a_{2g}^n(n impare).

Exemplo: Hexachloroethano; 3 a_{1g}, 1 a_{1u}, 2 a_{2u}, 3 e_g, 3 e_u.

D_4 (Per Abram Davis)

Elementos: I, C_2, C_2', C_2'', C_4.

Typos: a_1, a_2, b_1, b_2, e.

Permittite: In e Raman e infrarubie: e, $a_1 \times e$, $a_2 \times e$, $b_1 \times e$, $b_2 \times e$, $e \times e$, e^n.

Solmente in Raman: a_1, b_1, b_2, $a_1 \times a_1$, $a_1 \times b_1$, $a_1 \times b_2$, $a_2 \times a_2$, $a_2 \times b_1$, $a_2 \times b_2$, $b_1 \times b_1$, $b_2 \times b_2$, a_1^n, a_2^n(n par), b_1^n, b_2^n, e^2.

Solmente in infrarubie: a_2, $a_1 \times a_2$, $b_1 \times b_2$, a_2^n(n impare).

D_{4h} (Per David L. Kantro)

Elementos: I, C_4, C_2, C_2', C_2'', i, S_4, σ_h, σ_v, σ_d.

Typos: a_{1g}, a_{1u}, a_{2g}, a_{2u}, b_{1g}, b_{1u}, b_{2g}, b_{2u}, e_g, e_u.

Permittite: Solmente in infrarubie: a_{2u}, e_u, $a_{1g} \times a_{2u}$, $a_{1g} \times e_u$, $a_{1u} \times a_{2g}$, $a_{1u} \times e_g$, $a_{2g} \times e_u$, $a_{2u} \times e_g$, $b_{1g} \times b_{2u}$,

$b_{1g}^x e_u$, $b_{1u}^x b_{2g}$, $b_{1u}^x e_g$, $b_{2g}^x e_u$, $b_{2u}^x e_g$, $e_g^x e_u$, a_{2u}^n(n impare), e_u^n(n impare).

Solmente in Raman: Omne le alteres, excepte a_{1u}, a_{2g}, b_{1u}, b_{2u}, $a_{1g}^x a_{1u}$, $a_{1g}^x a_{2g}$, $a_{1g}^x b_{1u}$, $a_{1g}^x b_{2u}$, $a_{1u}^x a_{2u}$, $a_{1u}^x b_{1g}$, $a_{1u}^x b_{2g}$, $a_{2g}^x a_{2u}$, $a_{2g}^x b_{1u}$, $a_{2g}^x b_{2u}$, $a_{2u}^x b_{1g}$, $a_{2u}^x b_{2g}$, $b_{1g}^x b_{1u}$, $b_{1g}^x b_{2g}$, $b_{1u}^x b_{2u}$, $b_{2g}^x b_{2u}$, a_{1u}^n(n impare) a_{2g}^n(n impare), b_{1u}^n(n impare), b_{2u}^n(n impare).

D_6 (Per Louis Baker)

Elementos: I, C_2, C_3, C_6, C_2', C_2''.

Typos: a_1, a_2, b_1, b_2, e_1, e_2.

Permittite: In e Raman e infrarubie: e_1, $a_1^x e_1$, $a_2^x e_1$, $b_1^x e_2$, $b_2^x e_2$, $e_1^x e_1$, $e_1^x e_2$, $e_2^x e_2$, e_1^n(n impare), e_2^n(n impare).

Solmente in Raman: a_1, e_2, $a_1^x a_1$, $a_1^x e_2$, $a_2^x a_2$, $a_2^x e_2$, $b_1^x b_1$, $b_1^x e_1$, $b_2^x b_2$, $b_2^x e_1$, a_1^n, a_2^n(n par), b_1^n(n par), b_2^n(n par), e_1^n(n par), e_2^n(n par).

Solmente in infrarubie: a_2, $a_1^x a_2$, $b_1^x b_2$, a_2^n(n impare).

D_{6h} (Per G. P. Semeluk)

Elementos: I, C_2, C_3, C_6, C_2', C_2'', i, σ_h, S_6, S_3, σ_d, σ_v.

Typos: a_{1g}, a_{1u}, a_{2g}, a_{2u}, b_{1g}, b_{1u}, b_{2g}, b_{2u}, e_{1g}, e_{1u}, e_{2g}, e_{2u}.

Permittite: Solmente in infrarubie: a_{2u}, e_{1u}, $a_{1g}^x a_{2u}$, $a_{1u}^x a_{2g}$, $b_{1g}^x b_{2u}$, $b_{1u}^x b_{2g}$, $a_{1g}^x a_{1u}$, $a_{1u}^x a_{1g}$, $a_{2g}^x a_{1u}$, $a_{2u}^x e_{1g}$, $b_{1g}^x e_{2u}$, $b_{1u}^x e_{2g}$, $b_{2g}^x e_{2u}$, $b_{2u}^x e_{2g}$, $e_{1g}^x e_{1u}$, $e_{2g}^x e_{2u}$, $e_{1g}^x e_{2u}$, $e_{1u}^x e_{2g}$, a_{2u}^n(n impare), e_{1u}^n(n impare), e_{2u}^n(n impare).

Solmente in Raman: a_{1g}, e_{1g}, e_{2g}, $a_{1g}^x a_{1g}$, $a_{1u}^x a_{1u}$, $a_{2g}^x a_{2g}$, $a_{2u}^x a_{2u}$, $b_{1g}^x b_{1g}$, $b_{1u}^x b_{1u}$, $b_{2g}^x b_{2g}$, $b_{2u}^x b_{2u}$, $a_{1g}^x e_{1g}$, $a_{1u}^x e_{1u}$, $a_{2g}^x e_{1g}$, $a_{2u}^x e_{1u}$, $b_{1g}^x e_{2g}$, $b_{1u}^x e_{2u}$, $b_{2g}^x e_{2g}$, $b_{2u}^x e_{2u}$, $a_{1g}^x e_{2g}$, $a_{1u}^x e_{2u}$, $a_{2g}^x e_{2g}$, $a_{2u}^x e_{2u}$, $b_{1g}^x e_{1g}$, $b_{1u}^x e_{1u}$, $b_{2g}^x e_{1g}$, $b_{2u}^x e_{1u}$, $e_{1g}^x e_{1g}$, $e_{1u}^x e_{1u}$, $e_{2g}^x e_{2g}$, $e_{2u}^x e_{2u}$, $e_{1g}^x e_{2g}$, $e_{1u}^x e_{2u}$, a_{1g}^n, a_{1u}^n(n par), a_{2g}^n(n par), a_{2u}^n(n par), b_{1g}^n(n par), b_{1u}^n(n par), b_{2g}^n(n par), b_{2u}^n(n par), e_{1g}^n, e_{1u}^n(n par), e_{2g}^n, e_{2u}^n(n par).

O (Per R. E. Sladky)

Elementos: I, C_3, C_2, C_2', C_4.

Typos: a_1, a_2, e, f_1, f_2.

Permittite: In e Raman e infrarubie: exf_1, $e x f_2$, $f_1^x f_1$, $f_1^x f_2$, $f_2^x f_2$, f_1^4, f_1^5, f_2^4, f_2^5.

Solmente in Raman: a_1, e, f_2, $a_1^x a_1$, $a_1^x e$, $a_1^x f_2$, $a_2^x a_2$, $a_2^x e$, $a_2^x f_1$, $e x e$, a_1^n, a_2^n (n par), e^n, f_1^2, f_2^2.

Solmente in infrarubie: f_1, $a_1^x f_1$, $a_2^x f_2$, f_1^3, f_2^3.

O_h (Per Samuel Witz)

Elementos: I, C_3, C_2, C_4, C_2', i, S_4, S_6, σ_h, σ_d.

Typos: a_{1g}, a_{1u}, a_{2g}, a_{2u}, e_g, e_u, f_{1g}, f_{1u}, f_{2g}, f_{2u}.

Permittite: Solmente in Raman: a_{1g}, e_g, f_{2g}, $a_{1g}^x a_{1g}$, $a_{1g}^x e_g$, $a_{1g}^x f_{2g}$, $a_{1u}^x a_{1u}$, $a_{1u}^x e_u$, $a_{1u}^x f_{2u}$, $a_{2g}^x a_{2g}$, $a_{2g}^x e_g$, $a_{2g}^x f_{1g}$, $a_{2g}^x f_{2g}$, $a_{2u}^x a_{2u}$, $a_{2u}^x e_u$, $a_{2u}^x f_{1g}$, $e_g^x e_g$, $e_g^x f_{1g}$, $e_g^x f_{2g}$, $e_u^x e_u$, $e_u^x f_{1u}$, $e_u^x f_{2u}$, $f_{1g}^x f_{1g}$, $f_{1g}^x f_{2g}$, $f_{1u}^x f_{1u}$, $f_{1u}^x f_{2u}$, $f_{2u}^x f_{2u}$, a_{1g}^n, a_{1u}^n(n par), a_{2g}^n(n par), a_{2u}^n(n par), e_g^n, f_{1g}^n, f_{2g}^n.

Solmente in infrarubie: f_{1u},

a_{1g}x f_{1u}, a_{1u}x f_{1g}, a_{2g}x f_{2u}, a_{2u}x f_{2g}, e_gx f_{1u}, e_gx f_{2u}, e_ux f_{1g}, e_ux f_{2g}, f_{1g}x f_{1u}, f_{1g}x f_{2u}, f_{1u}x f_{2g}, f_{2g}x f_{2g}, f_{2g}x f_{2u}, $f_{1u}^n(n>2)$, $f_{2u}^n(n>2)$.

T (Per D. A. Pontarelli)

Elementos: I, C_3, C_2.

Typos: a, e, f.

Permittite: In e Raman e infrarubie: f, a x f, e x f, f^n.

Solmente in Raman: a, e, a x e, a^n, e^n.

T_d

Elementos: I, C_3, C_2, σ_d, S_4.

Typos: a_1, a_2, e, f_1, f_2.

Permittite: In e Raman e infrarubie: f_2, a_1x f_2, a_2x f_1, e x f_1, e x f_2, f_1x f_1, f_1x f_2, f_2x f_2, f_1^n, f_2^n.

Solmente in Raman: a_1, e, a_1x a_1, a_1x e, a_2x a_2, a_2x e, e x e, a_1^n, a_2^n(n par), e^n.

Le regulas de selection pro le gruppos continue esseva date in le previe section super moleculas linear. Regulas de selection pro altere gruppos pote esser derivate per le methodos explicate in le previe sectiones.

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Isto conclude le serie de parcellas super le regulas de selection. Illos nunc ha essite colligite in un monographia de circa 25 paginas sub le titulo, "Regulas de Selection pro Spectros Vibrational de Moleculas Polyatomic". Lectores que desira un exemplar de iste monographia debe inviar $0.75 a Forrest F. Cleveland, instituto technologic de Illinois, Chicago 16, Illinois, Statos Unite.

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SPECTRO MICROUNDIC DE $H_3C-C\equiv C-C\equiv C-H$

(continuate ab pagina 42)

(central) obtenite per Jeffrey e Rollett (Proc. Roy. Soc. A213, 86 (1952)) esseva 1,375A. Spectros de $H_3C-C\equiv C-C\equiv C-D$ e de moleculas continente C^{13} se obtenera plus tarde.

LIBROS

Spectroscopia absorptionic analytic. Redigite per M. G. Mellon. Contribuentes: L. J. Brady, W. B. Fortune, K. S. Gibson, E. R. Holiday, D. B. Judd, M. L. Moss, R. H. Müller, e E. I. Stearns. In anglese. John Wiley and Sons, Inc., New York; Chapman and Hall, Ltd., London. 618 paginas, $9.00, 1950.

ISTE libro representa un tractamento comprehensive del principios, methodos, e apparatos involvite in le applicationes analytic del absorption de energia radiante in le regiones ultraviolette, visibile e infrarubie. Cata capitulo presenta un delineation de problemas, solutiones suggerite, e un consideration del errores e del causas del errores, como etiam selection representative de citationes ex le litteratura. In le nove capitulos il ha 1246 citationes.

Capitulo 1 coperi le preparation de systemas pro mesurationes absorptiometric e presenta multe tabulas e citationes de valor a illos qui es concernite con proceduras analytic. Le natura del processo absorptionic e le leges de absorption de Beer e Bouguer es adequatemente discutite in capitulo 2. Le instrumentation pro absorptiometria es discutite in capitulos 3, 4, 5, e 8. Capitulo 5 ha un description complete de plure instrumentos e sublinea le relation del errores in measurationes spectrophotometric al objectivo del mesurationes. Le applicationes del datos spectrophotometric pro le visible e ultraviolette es tractate in capitulo 7. Discutite in capitulo 6 es methodos photographic e in capitulo 9 le mesuration e specification de color.

Le libro pare esser scribite primarimente pro le laboratorio analytic; nonobstante, le technicas date como etiam le citationes face le libro de valor a alicuno qui es concernite con proceduras experimental.

Fred L. Voelz
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COMMISSION JUNCTE PRO SPECTROSCOPIA

IE commission juncte pro spectroscopia ha recommendate:

(1) que le unitate del numero de undas previemente designate como cm^{-1} sia nomi-

nate kayser con le abbreviation natural K;
(2) le uso universal del symbolo σ pro le numero de undas in loco de ν pro evitar confusion con le symbolo de frequentia;
(3) que le factor de conversion pro computar le energia in voltas electronic ex le unitates del numero de undas (kaysers) essera 0,00012395 pro conformar al libro standard, Atomic Energy Levels.

Pro altere recommendationes de iste commission vide J. Opt. Soc. Am. 43, 410-430 (1953).

CONTRIBUTIONES FINANCIARI ADDITIONAL

Dr. Richard B. Bernstein, departimento de chimia, universitate Michigan, Ann Arbor, Michigan, Statos Unite (secunde contribution).

Applied Research Laboratories, P.O.Box 1710, Glendale 5, California, Statos Unite; Senior A. A. Shurkus, director del promotion de venditas (6te contribution).

Senior David T. Burbank, 14 N.Kingshighway, St. Louis, Missouri, Statos Unite (tertie contribution).

Dr. Dusan Hadzi, Kemicni Institut, Slovenska Akademija, Znanosti in Umetnosti, Ljubljana, Yugoslavia.

Costo de un numero de 4 paginas per lector per anno $1.50
Contributiones usque nunc per lector per anno $0.58

SUBVENTIONES PRO RECERCA RE CANCERE

SECUNDO le Chronicle 14, Nos. 9-11,1953 del Institutum Divi Thomae in Cincinnati, Ohio, Statos Unite, duo subventiones ha essite recipite pro recerca super cancere. Le prime va a Dr. Elton Cook e veni ab le United States Public Health Service pro recerca infrarubie durante le annos 1953-55. Le secunde va a Soror Miriam Michael Stimson del Collegio Siena Heights in Adrian, Michigan, e veni ab le American Cancer Society pro recerca super le characteristicas de absorption ultraviolette de derivatos de acidos nucleic in le stato solido.

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Ricerche Spettroscopiche. Un revista non-periodic. Volumine 2, numero 1, 63 paginas. Le contento de chlorino in meteorites. Per E. Salpeter del laboratorios astrophysic del Specola Vaticana, Roma.

Spectroscopia molecular es publicate mensualmente in interlingua al Spectroscopy Laboratory, Illinois Institute of Technology, Chicago 16, Illinois, U.S.A. Illo pote devenir un jornal importante si illo recipe le supporto de spectroscopistas molecular. Invia summarios, novas, articulos, proponimentos, e assistentia financiari a Forrest F. Cleveland al adresse supra-indicate.

Le bulletin se basa super le conviction que illo recipera financiari contributiones voluntari -- sufficiente pro su crescimento e disveloppamento -- ab illos qui beneficia de illo, e ab alteres qui crede que isto es un projecto que merita lor supporto. Le natura e valor de numeros futur essera un mesura del validitate de iste hypothese.

Le texto original esseva legite per Dr. Alexander Gode, director del Division de interlingua de Science Service (80 East 11th Street, New York 3, N. Y.). Libros importante super interlingua es Interlingua-English Dictionary e Interlingua Grammar (Storm Publishers, New York 17).

Labor editorial es gratis. Le costo de preparation e distribution es donate per le lectores e le companias. Le director de publication es senioretta Joyce Carol Broling.

. . . . . .
. (Posta al adresse supra-indicate; face
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. attachamento al sequente numero. (Traduction in interlingua, si desirate,
. gratis per Science Service.)
.
. ☐ Io include $2.00 pro le numeros del
. anno 1952.
.
. ☐ Io include $0.75 pro Regulas de selection pro spectros vibrational de moleculas polyatomic (1953, 25 paginas).
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S P E C T R O S M O L E C U L A R. I.

R E G U L A S D E S E L E C T I O N
P R O
S P E C T R O S V I B R A T I O N A L
D E
M O L E C U L A S P O L Y A T O M I C

per

Forrest F. Cleveland

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ISTE PARVE MONOGRAPHIA explica le methodos de obtener le regulas de selection pro spectros vibrational de moleculas polyatomic, e linear e non-linear. Tabulas del characteres de omne le gruppos es date, e resultatos pro le regulas de selection pro multe symmetrias es tabulate. Pro plus facile comprehension per multe spectroscopistas, le monographia esseva scribite in le lingua international, Interlingua. Illo es appropriate pro uso in seminarios, classes in structura molecular, o pro referentia. Illo etiam pote esser usate per le lector individual qui desira comprehender iste subjecto. Le tractamento es elementari e detaliate pro plus facile comprehension per le initiato in iste campo.

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(Seca e posta a Laboratorio de spectroscopia, Cassa postal 58, Instituto technologic de Illinois, Chicago 16, Illinois, Statos Unite; face cheques pagabile a Forrest F. Cleveland. Data de publication, septembre 1953. Precio per exemplar, $0.75.)

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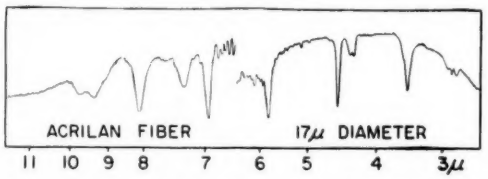

Infrared spectrum of a single synthetic fiber obtained with a microscope attachment on a Model 112 Infrared Spectrometer.

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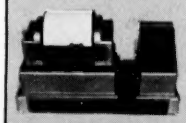

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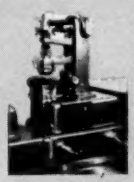

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